

SONY

3-758-507-13(1)

WARNING

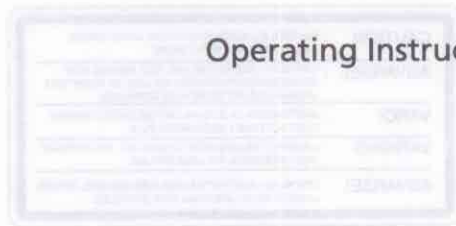
To prevent fire or shock hazard, do not expose the unit to rain or moisture.

For the customer in the U.S.A.



Mini Hi-Fi Component System

Operating Instructions



Welcome!

Thank you for purchasing the Sony Mini Hi-Fi Component System. This system is designed to provide excellent sound reproduction for your listening pleasure. The system consists of a compact disc player, a tuner, and a receiver. The compact disc player is designed to play compact discs and is equipped with a digital filter to reduce distortion. The tuner is designed to receive and tune to various radio stations. The receiver is designed to amplify the sound and provide a clear, powerful output. The system is easy to use and provides excellent sound reproduction for your listening pleasure.

About This Manual

This manual contains important information about the system and its operation. Please read this manual carefully before using the system. The manual is divided into several sections, including: Introduction, Safety Precautions, Operation, and Troubleshooting. The Introduction section provides an overview of the system and its features. The Safety Precautions section contains important information about the safe use of the system. The Operation section provides detailed instructions on how to use the system. The Troubleshooting section provides information about common problems and how to solve them.

COMPACT disc DIGITAL AUDIO
MHC-450
FH-B411

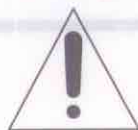
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

For the customers in the U. S. A.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Owner's Record

The model and serial numbers are located on the rear panel. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product. Model No. MHC-450 Serial No. _____

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

CAUTION

The use of optical instruments with this product will increase eye hazard.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820 - 40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

For the Customers in Canada

CAUTION:

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

For the customers except in the U.S.A. and Canada.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.



This caution label is located inside the unit.

Welcome !

Thank you for purchasing the Sony Mini Hi-Fi Component System. This stereo system is packed with fun features. Here are just a few:

- DBFB (Dynamic Bass Feedback) system that boosts low frequency range audio to provide deep, powerful bass through the two-way bass reflex speakers
- A preset feature that lets you store and recall up to 30 of your favorite radio stations
- A graphic equalizer that lets you adjust the audio quality
- A dual tape deck that lets you record from the radio, CD player or from the other tape deck
- A remote commander that lets you control the music from your seat

About This Manual

The instructions in this manual are for MHC-450 and FH-B411. Before you start reading, check your model number. MHC-450 is the model used for illustration purposes. Any differences are clearly indicated in the text, for example, "FH-B411 only"

Table of Contents

Chapter 1: Setting Up

- Connecting the Stereo 4
- Inserting the Batteries 5

Chapter 2: the CD Player

- Playing a CD (normal play) 6
- Playing Tracks in Random Order (shuffle play) 7
- Playing Tracks in the Desired Order (program play) 7
- Playing Tracks Repeatedly (repeat play) 8

Chapter 3: the Radio

- Listening to the Radio 9
- Presetting Radio Stations 9
- Playing Preset Radio Stations 10

Chapter 4: the Tape Player

- Playing a Tape 11
- Recording a CD 11
- Recording a CD: Specifying Tape Length (time edit) 12
- Recording a CD: Specifying Track Order (program edit) 12
- Recording From the Radio 13
- Recording From Another Tape (dubbing) 13

Chapter 5: Sound Adjustment

- Adjusting the Sound 14
- Adjusting the Sound Quality 14

Chapter 6: Additional Features

- Connecting Optional Equipment 15
- Microphone Mixing (for FH-B411 only) 15
- Karaoke: Singing Along (for FH-B411 only) 15

For Your Information

- Precautions 16
- Troubleshooting Guide 16
- Maintenance 17
- Specifications 17
- Index to Parts and Controls 18

Index Back cover



Chapter 1: Setting Up

Connecting the Stereo

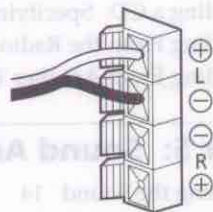
Use the illustrations below to connect your stereo. MHC-450 is the model used for the whole illustrations of the stereo in this manual.

STEP 1 Connecting the Speakers (MHC-450 only)

- 1 Twist the speaker cable coating and strip it from the end of the cable.

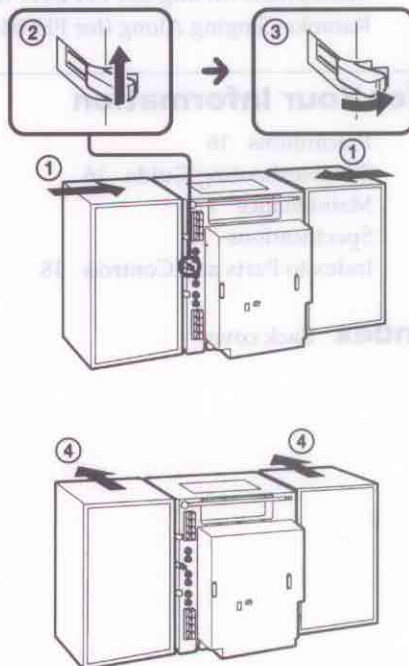


- 2 Connect the right speaker to the R connectors and the left speaker to the L connectors.



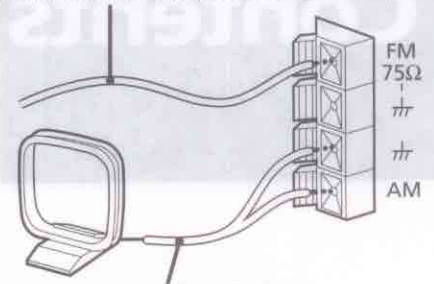
When you attach the speakers to the unit (FH-B411 only)

Slide the speaker box so that it locks onto the body of the unit.



STEP 2 Connecting the Antenna

FM lead antenna (supplied for MHC-450)*

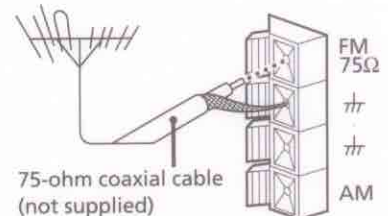


AM loop antenna (supplied)

* Note: Extend it horizontally.

To improve the FM reception

Connect an outdoor FM antenna to the FM 75Ω and π terminals, using a 75-ohm coaxial cable.



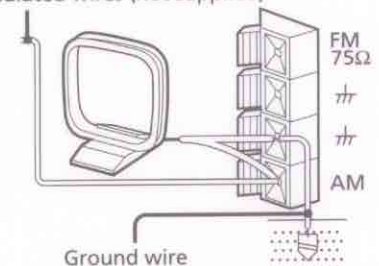
To improve the AM reception

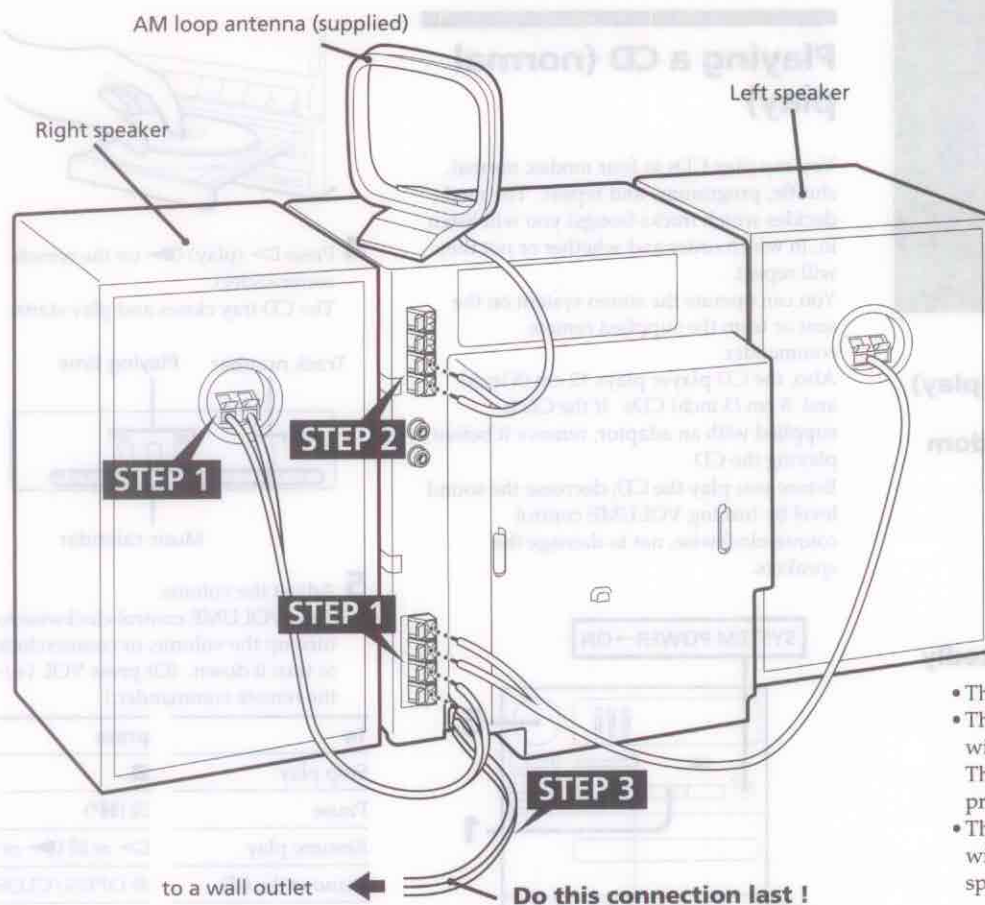
After you connect the AM antenna, connect a 6- to 15-meter (20- to 50-feet) insulated wire to the AM terminal. Connect the π terminal to earth.

Important

Ground the external antenna against lightning. To prevent explosion, do not connect the ground wire to a gas pipe.

Insulated wires (not supplied)

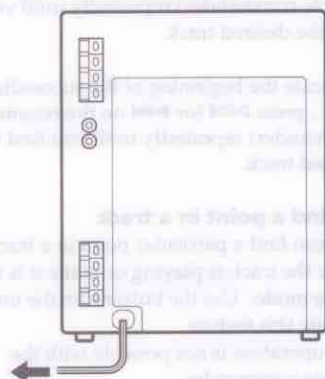




- This illustration shows MHC-450.
- The FH-B411 model is equipped with a handle for portability. The handle pops out when you press PUSH on the top of the unit.
- The FH-B411 model is equipped with a Telescopic antenna and speaker code.

STEP 3 Connecting the Power

Connect the power lead to a wall outlet after you have made all the above connections.



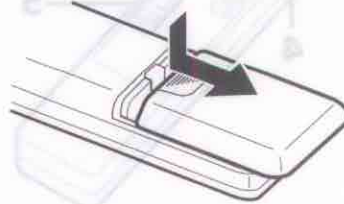
Caution

Before you power on the stereo, turn VOLUME control counterclockwise to decrease sound level.

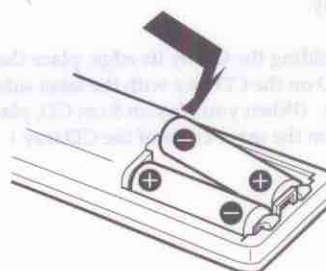
Inserting the Batteries

Insert two size AA (R6) batteries in the supplied remote commander for remote control.

1 Open the lid.



2 Insert two size AA (R6) batteries. Match the + and - indications with those inside the battery compartment.



3 Close the lid.

Battery life

You can expect the remote commander to operate for about six months (using Sony SUM-3 (NS) batteries) before the batteries run down. When the batteries no longer operate the commander, replace all the batteries with new ones.

To avoid battery leakage

If you are not going to use the commander for a long time, remove the batteries to avoid damage caused by corrosion from battery leakage.

Chapter 2: the CD Player

Playing a CD (normal play)

Playing Tracks in Random Order (shuffle play)

Playing Tracks in the Desired Order (programme play)

Playing Tracks Repeatedly (repeat play)

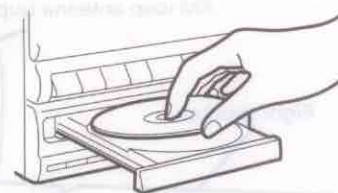
Playing a CD (normal play)

You can play CDs in four modes: normal, shuffle, programme and repeat. The mode decides which tracks (songs) you will listen to, in which order and whether or not they will repeat.

You can operate the stereo system on the unit or from the supplied remote commander.

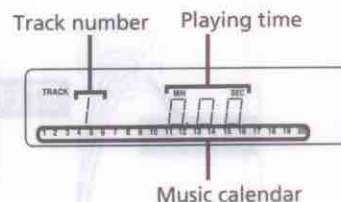
Also, the CD player plays 12 cm (5 inch) and 8 cm (3 inch) CDs. If the CD is supplied with an adaptor, remove it before playing the CD.

Before you play the CD, decrease the sound level by turning VOLUME control counterclockwise, not to damage the speakers.



4 Press \triangleright (play) (\blacktriangleright on the remote commander).

The CD tray closes and play starts.



5 Adjust the volume.

Turn VOLUME control clockwise to turn up the volume, or counterclockwise to turn it down. (Or press VOL (+/-) on the remote commander.)

To	press
Stop play	\blacksquare
Pause	$\ \ $ ($\ \ $ *)
Resume play	\triangleright or $\ \ $ (\blacktriangleright or $\ \ $ *)
Remove the CD	\triangle OPEN/CLOSE

*Remote commander

To find the beginning of a track — Automatic Music Sensor (AMS)

You can locate the beginning of a track while the track is playing or while it is in pause mode.

To locate the beginning of the current or preceding track, press \lll (or \lll on the remote commander) repeatedly until you find the desired track.

To locate the beginning of the succeeding track, press \ggg (or \ggg on the remote commander) repeatedly until you find the desired track.

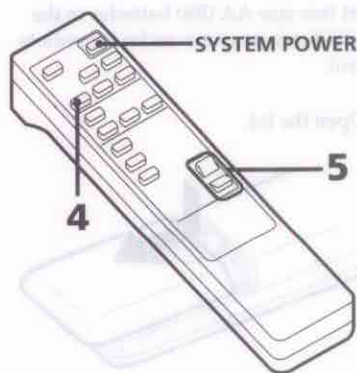
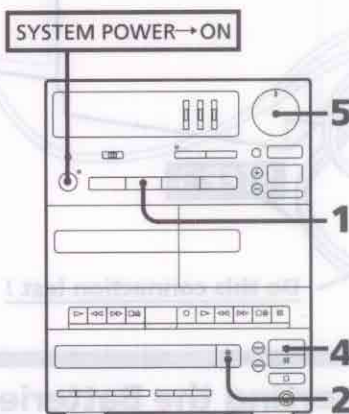
To find a point in a track

You can find a particular point in a track while the track is playing or while it is in pause mode. Use the buttons on the unit to operate this feature.

This operation is not possible with the remote commander.

Note on pause mode

The minute and second indication appears in the display and remains there to indicate that the unit is in the pause mode.






- 1** Press CD.
- 2** Press \triangle OPEN/CLOSE to open the CD tray.
- 3** Holding the CD by its edge, place the CD on the CD tray with the label side up. (When you play an 8 cm CD, place it on the inner circle of the CD tray.)

To	Do this
Find forward quickly in a track	Hold down ▶▶ and release it at the desired point.
Go backwards quickly in a track	Hold down ◀◀ and release it at the desired point.
Search quickly without listening	Press ⏏ and hold down ◀◀ or ▶▶ . Press ▶ or ◀ again at the desired point.

To check the remaining or total playing time

Use the TIME button on the player.

To check	Press
Remaining time in a track	TIME once during play. 
Remaining time in the CD	TIME twice during play of the tracks left. 
Total playing time	TIME in stop mode.  appears for a few seconds

Notes

- You can check the remaining time during normal, shuffle and programme play.
- The total playing time and number of tracks also appear in the display when you press **⏏** OPEN/CLOSE to close the CD tray.

Notes on handling discs

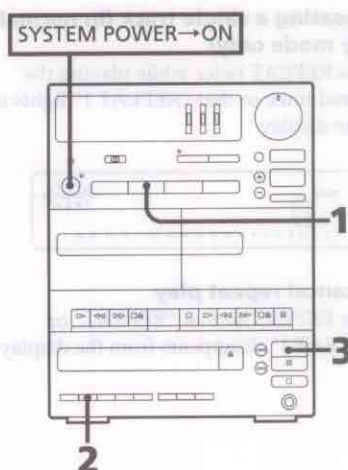
- To keep the disc clean, handle the disc by its edge. Do not touch the surface.
- Do not stick paper or tape onto the disc.
- Do not expose the CD to direct sunlight or heat sources such as hot air ducts, nor leave it in a car parked in direct sunlight as there can be a considerable rise in temperature inside the car.

If there is no CD in the player

"no disc" appears in the display when you press **▶**.

Playing Tracks in Random Order (shuffle play)

You can play all the tracks on the CD in random order. Use the buttons on the unit to do this operation.



- 1 Press CD.
- 2 Press SHUFFLE.
"SHUFFLE" appears in the display.
- 3 Press **▶**.
"⏏" appears and then all the tracks play in random order.

To stop playing

Press **■**.

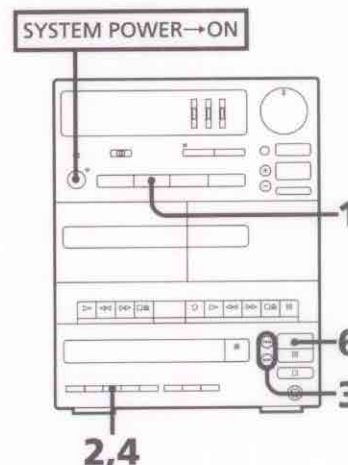
To cancel shuffle play

Press CONTINUE.

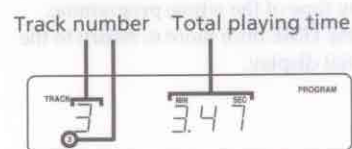
"SHUFFLE" disappears from the display, and tracks continue playing in their original order.

Playing Tracks in the Desired Order (programme play)

You can programme up to 24 tracks to play in any order you choose. Use the buttons on the unit to do this operation.



- 1 Press CD.
- 2 Press PROGRAM.
"PROGRAM" appears in the display.
- 3 Press **◀** or **▶** to choose a track.
The track number and the total playing time appear in the display. If you want to choose this track, go to the next step. If not, press **◀** or **▶** again to choose another track.



- 4 Press PROGRAM.
The chosen track number and playing order light up in the music calendar. If the track number, the playing order and the total playing time disappear before you press PROGRAM, go back to step 3.

Note

If "----" appears instead of the total playing time during programming or during play, this means the total programmed time has exceeded 100 minutes.

- 5 Repeat steps 3 and 4 to programme the remaining tracks you want to be played in the desired order.
- 6 Press **▶** (▶) on the remote commander).
All the tracks play in the order you chose.

To	Press
Check the programme	CHECK repeatedly*.
Programme a pause	⏏** (⏏)***
Stop play	■
Cancel the programme play	CONTINUE****
Erase a track from the end	CLEAR in stop mode.
Erase a specific track	CHECK repeatedly so the number of the track lights up, and press CLEAR.
Erase the entire programme	■ once in stop mode. ■ twice during play.

* After the last track appeared, "END" will appear in the display.

** "P" appears in the display and the total playing time is reset to 0.

*** Remote commander

**** The programme has been erased and the play continues in normal play mode.

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To change the order of programmed tracks

To change the order, erase the entire programme and create a new one.

To check the total remaining time of the programmed tracks

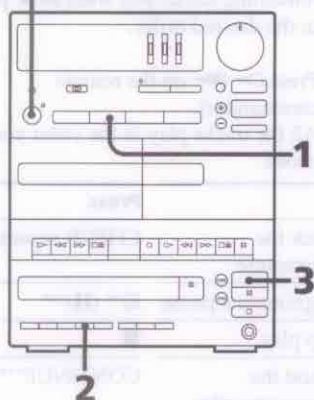
- 1 Press TIME once to see the remaining time of the track being played.
- 2 Press TIME again to see the remaining play time of the whole programme.
- 3 Press TIME once more to return to the initial display.



Playing Tracks Repeatedly (repeat play)

You can choose between two different repeat play modes. One repeats all the tracks in the current play mode; the other repeats a single track. Use the buttons on the unit to do this operation.

SYSTEM POWER → ON



Repeating all the tracks (in any play mode)

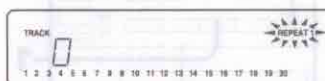
- 1 Press CD.
- 2 Press REPEAT once so that "REPEAT" lights up in the display.



- 3 Press > (▶) on the remote commander).

Repeating a single track (in normal play mode only)

Press REPEAT twice while playing the desired track so that "REPEAT 1" lights up in the display.



To cancel repeat play

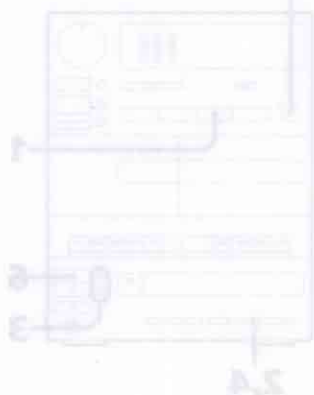
Press REPEAT so that "REPEAT" or "REPEAT 1" disappears from the display.



Playing Tracks in the Desired Order (programme play)

You can programme up to 11 tracks in play order under supervision. Use the buttons on the unit to do this operation.

SYSTEM POWER → ON



Chapter 3: the Radio

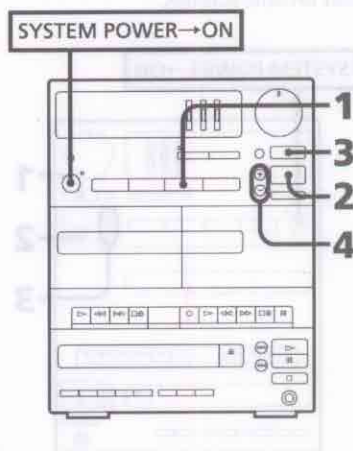
Listening to the Radio

Presetting Radio Stations

Playing Preset Radio Stations

Listening to the Radio

When you want to play a radio program, you can have the tuner automatically scan the radio frequencies and tune in the stations with clear signals (except SW band). This feature saves your time in searching for stations with clear signals. However, stations with weak signals may be skipped by automatic tuning. Manually tune in the ones skipped by automatic tuning and SW band stations.



1 Press TUNER.

2 Press BAND repeatedly until the band you want appears in the display. As you press BAND, the band changes as follows:

U. S. A. and Canadian models:

→ FM → AM →

Australian model:

→ FM → MW → SW →



3 Make sure that the PRESET indicator is off. If the indicator is on, press PRESET/TUNING to turn off.

4 Press TUNER (+/-) more than one second so that "AUTO" appears in the display. (When you select SW in step 2 "AUTO" does not appear. Manually tune in an SW band station.) The tuner starts scanning radio frequencies automatically, and stops when it finds a clear station.



5 If you do not want to listen to the station selected, press TUNER (+/-) more than one second so that "AUTO" appears in the display.

The tuner starts scanning radio frequencies automatically, and stops when it finds a clear station.

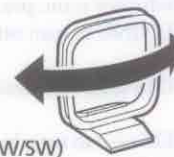
When the desired station is not tuned in

Automatic tuning may skip the station with a weak signal. Tune in the station manually.

Press TUNER (+/-) repeatedly to tune in your favorite station.

To improve AM broadcast reception

Reorientate the supplied AM loop antenna for AM (MW and SW).



AM (MW/SW)

To change the AM tuning interval

The AM tuning interval is preset to 9 kHz for Australia, 10 kHz for the United States and Canada in the factory. If you need to change the interval, do as follows:

- 1 Turn on the power.
- 2 Tune in any AM station.
- 3 Turn off the power.
- 4 Turn the power back on while pressing TUNER (+).

After changing the AM tuning interval, reset the preset AM stations. To reset the interval to the factory setting, follow the same procedure.

When an FM program is not clear to receive

Press MONO so that "MONO" appears in the display. There will be no stereo effect, but the reception will improve. Press MONO again to restore the stereo effect.

For FH-B411 only:

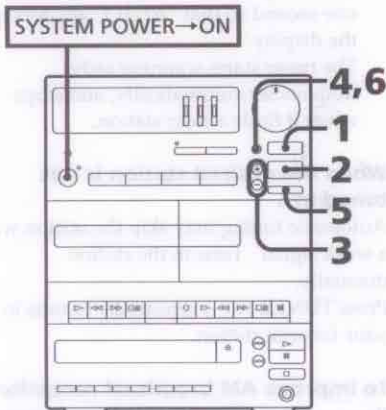
Adjust the length and direction of the telescopic antenna for FM.

Presetting Radio Stations

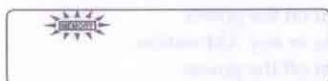
You can store radio frequencies in the tuner's memory to tune in your favourite stations quickly. You can preset up to 30 stations with FM and AM (MW and SW) collectively in any order by specifying a code. The code is a combination of a letter (A, B or C) and a number (0 to 9): A1, A2,...etc. Use the buttons on the unit for presetting stations.

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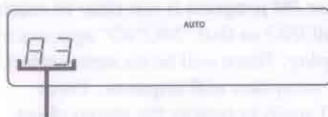
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- 1 Make sure that the PRESET indication is off. If the indicator is on, press PRESET/TUNING to turn off.
- 2 Press BAND to select the desired band.
- 3 Press TUNER(+/-) to tune in the station you want to store.
- 4 Press MEMORY. "MEMORY" and a letter (A, B or C) appear in the display.



- 5 Decide on a letter (A, B or C) for the radio station. Press SHIFT to display the letter you have decided on. The last memorized number of the code appears.



last memorized code

- 6 Press MEMORY. "MEMORY" disappears, and the station is stored at the code you have decided on.
- 7 Repeat steps 2 to 6 for each station you want to store.

To erase a stored station

Storing a new station at a previously used code will erase the old station and replace it with the new station.

If you have trouble storing a station

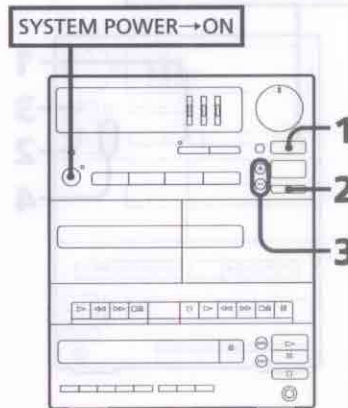
Make sure "MEMORY" is lit in the display. If not, press MEMORY again so that "MEMORY" lights up (for about eight seconds) in the display, and then proceed with steps 5 and 6.

If you made a mistake

Press MEMORY again and then proceed with steps 5 and 6.

Playing Preset Radio Stations

Once you have preset the stations, use the PRESET/TUNING button to quickly tune in your favorite stations.



- 1 Press PRESET/TUNING to enter the preset mode. "PRESET" and a code appear.
- 2 Press SHIFT to select a desired letter of the code.
- 3 Press TUNER (+/-) (or PRESET (+/-) on the remote commander) to tune in a preset station. The station frequency appears and the station begins broadcasting.



Chapter 4: the Tape Player

Playing a Tape

Recording a CD

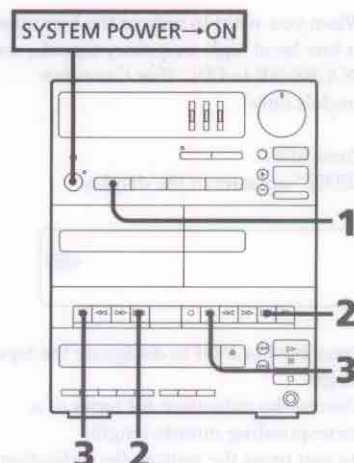
Recording a CD: Specifying Tape Length (time edit)

Recording a CD: Specifying Track Order (program edit)

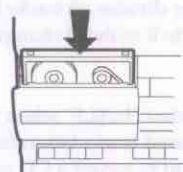
Recording From the Radio

Recording From Another Tape (dubbing)

Playing a Tape



- 1 Press TAPE.
- 2 Press to open the cassette compartment. Insert a recorded tape into deck A or B with the tape side facing down. Push to close the compartment.



- 3 Press . The tape starts playing.

To	Press
Stop play	
Pause (for deck B only)	
Resume play after pause (for deck B only)	
Fast forward	
Rewind	
Remove the cassette	

If you play both decks at the same time
You hear the sound from deck A.

When listening to a tape recorded with the Dolby* B-type noise reduction system
(For Canadian models only)
Set the DOLBY NR selector to ON.
The setting effects both decks. Dolby noise reduction system reduces tape hiss noise in low-level high-frequency signals.

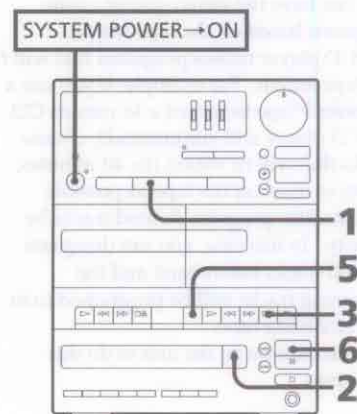
* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Recording a CD

You can record from a CD to a tape. Use TYPE I (normal) or TYPE II (CrO₂) tape. Do not use TYPE IV (metal) tape for recording.
To listen to other sources while recording, you must stop recording.

Recording a CD Manually

You can record a CD as you like, for instance, by recording just the songs you want or record from the middle of the tape.



- 1 Press CD.
- 2 Press and place a CD on the CD tray. Then, press again to close the CD tray.
- 3 Press and insert a blank tape into deck B. Make sure the tabs on the cassette has not been removed.
- 4 When you want to reduce the hiss noise in low-level high-frequency signals, set DOLBY NR to ON. (For Canadian models only)
- 5 Press (▷ is linked and depressed at the same time) on deck B. Recording starts.

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- 6 Press ▷ on the CD player after 10 seconds.
The CD starts playing.

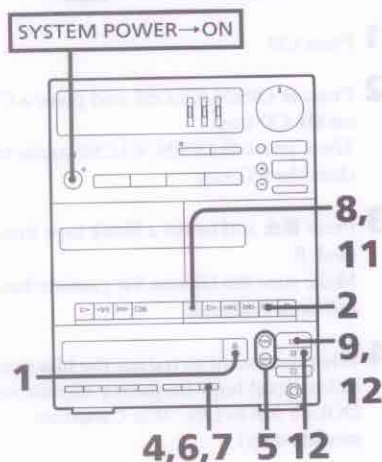
To start recording more precisely

- 1 After step 2, press 00.
- 2 Press ● (▷ is linked and depressed at the same time).
- 3 Press ▷ on the CD player.
- 4 Press 00 again at the desired point to start recording.

Adjusting the volume or the audio emphasis will not affect the recording level
But these controls will change the sound levels you hear through speakers or headphones.

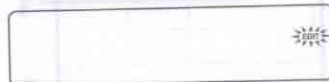
Recording a CD: Specifying Tape Length (time edit)

You can have the stereo system create programs based on the tape length. The CD player makes programs that will fit the tape length. For example, if you use a 40-minute tape to record a 46-minute CD, the CD player will automatically choose tracks that will fit within the 40 minutes, filling as much of the tape as possible. You can also program desired tracks by priority. In this case, you can designate desired tracks beforehand and the remaining tracks will be programmed to fit the remaining time. Use the buttons on the unit to do this operation.

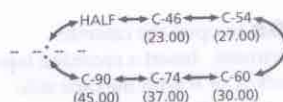


- 1 Press △ OPEN/CLOSE and place a CD on the CD tray.
Then, press △ OPEN/CLOSE again to close the CD tray.

- 2 Press ■▲ and insert a blank tape into deck B.
Make sure the tabs on the cassette has not been removed.
- 3 When you want to reduce the hiss noise in low-level high-frequency signals, set DOLBY NR to ON. (For Canadian models only)
- 4 Press EDIT.
"EDIT" appears in the display.



- 5 Press ◀◀ or ▶▶ to designate the tape length.
Choose the indication for tapes of a corresponding minute length.
As you press the button, the indication changes as follows:



What "HALF" during time edit means

The CD player divides all tracks between side A and side B without changing the order.

You cannot select "HALF" when you designate desired tracks beforehand or when you want to record a CD which has more than 24 tracks.

- 6 Press EDIT.
The CD player determines the tracks to be recorded on side A automatically and "B" flashes in the display.



- 7 When you want to record on both sides, press EDIT again.
The CD player determines the tracks to be recorded on side B.
- 8 Press ● on deck B.
Recording starts.
- 9 Press ▷ on the CD player.
The determined tracks for side A starts playing and are recorded. After those tracks have been recorded, the unit will pause.
- 10 Set the tape to the beginning of side B.
- 11 Press ● on deck B.
Recording starts.

- 12 Press ▷ or 00 on the CD player.
The determined tracks for side B starts playing and are recorded.

To stop recording

Press ■▲ on deck B.

To select the desired tracks beforehand

You can place priority on some tracks to be recorded by selecting them before programming (only up to 24 tracks). See "Playing Tracks in the Desired Order (program play)".

To check the order

Press CHECK.

Each time you press CHECK, the numbers of the programmed tracks appear in the display.

To cancel time edit

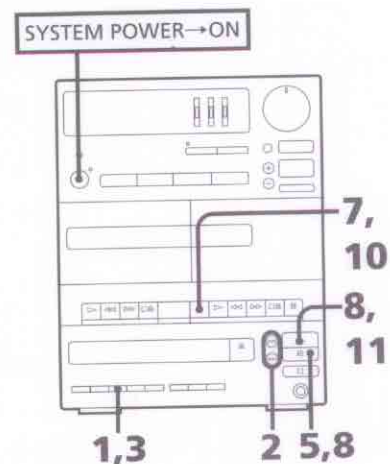
Before you press EDIT on step 6, press ■ to cancel. After you pressed EDIT on step 6, press CONTINUE.

If programming takes too long

Some CDs with many tracks may take a while for the CD player to program. In this case, press ■. Programming will stop.

Recording a CD: Specifying Track Order (program edit)

You can adjust the total recording time to the tape length while making a program. Use the buttons on the unit to do this operation.



- 1 Press PROGRAM.
"PROGRAM" appears in the display.
- 2 Press ◀◀ or ▶▶ to choose a track.
The track number and the total playing time appear in the display.

- 3** Press PROGRAM.
The chosen track number lights up in the music calendar and is memorized. If the track number disappears before you press PROGRAM, go back to step 2.
- 4** Repeat steps 2 and 3 to program the remaining tracks you want to record on side A in the order you want them to be recorded.
- 5** Press 00.
"P" appears in the display. The total playing time "0" is displayed.
- 6** Repeat steps 2 and 3 to program the remaining tracks you want to record on side B in the order you want them to be recorded.
- 7** Press ● on deck B.
Recording starts.
- 8** Press ▷ or 00 on the CD player.
The tracks for side A are played and recorded in the order of your choice. After those tracks have been recorded, the unit will pause.
- 9** Set the tape to the beginning of side B.
- 10** Press ● on deck B.
Recording starts.
- 11** Press ▷ or 00 on the CD player.
The tracks for side B are played and recorded in the order of your choice.

To stop recording

Press ■▲ on deck B.

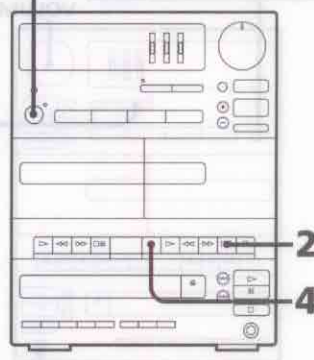
To cancel program edit

Press CONTINUE.

Recording From the Radio

You can record from the tuner onto the tape. Use TYPE I (normal) or TYPE II (CrO2) tape.

SYSTEM POWER → ON



- 1** Tune in the radio station you want to record. (See "Listening to the Radio", or "Playing Preset Radio Stations" for details.)
- 2** Press ■▲ and insert a blank tape into deck B.
- 3** When you want to reduce the hiss noise in low-level high-frequency signals, set DOLBY NR to ON. (For Canadian models only)
- 4** Press ● on deck B.
Recording starts.

To stop recording

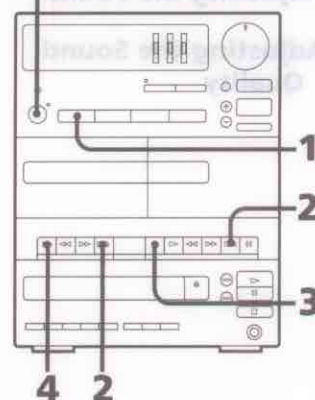
Press ■▲.

Adjusting the volume or the audio emphasis will not affect the recording level
But these controls will change the sound levels you hear through speakers or headphones.

Recording From Another Tape (dubbing)

You can record the whole tape onto another. Use the buttons on the unit and TYPE I (normal) or TYPE II (CrO2) tape for dubbing.

SYSTEM POWER → ON



- 1** Press TAPE.
- 2** Press ■▲ and insert a recorded tape into deck A and a blank tape into deck B.
- 3** Press ● (▷ is linked and depressed at the same time) on deck B.
Recording starts.
- 4** Press ▷ on deck A.
The tape on deck A starts playing.

To stop dubbing.

Press ■▲ on deck B.

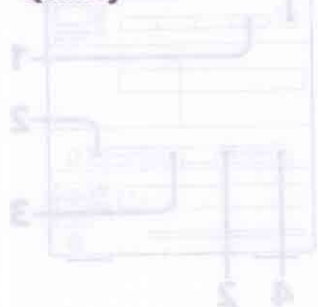
Note

If you press CD or TUNER during dubbing, the tape playback sound cannot be heard, however the tape dubbing continues.

Chapter 5: Sound Adjustment

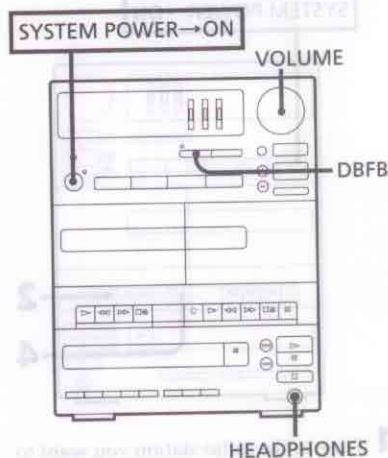
Adjusting the Sound

Adjusting the Sound Quality



Adjusting the Sound

To fully enjoy the sound coming from your stereo system, make the following audio adjustments. See the following sections for additional sound adjustments.



To adjust the volume

Turn VOLUME control or press VOL (+/-) on the remote commander.

To reinforce bass

Press DBFB* so that the lamp lights up.

To listen through the headphones

Connect the headphones to HEADPHONES jack. No sound will come from the speakers.

*DBFB=Dynamic Bass Feedback

Adjusting the Sound Quality

Adjust the following 3 band graphic equalizer controls.

Control	Function
100 Hz	Boosts or cuts heavy bass.
1 kHz	Accentuates or subdues vocals.
12 kHz	Boosts to a sharper sound or reduces flat sound.

Chapter 6: Additional Features

Connecting Optional Equipment

Microphone Mixing (for FH-B411 only)

Karaoke :Singing Along (for FH-B411 only)

Connecting Optional Equipment

For greater enjoyment of your stereo system, you can connect other components to the stereo. You can connect:

- a microphone to the MIX MIC jack
- headphones to the HEADPHONES jack on the front of the CD player
- a VCR to the VIDEO/AUX jacks

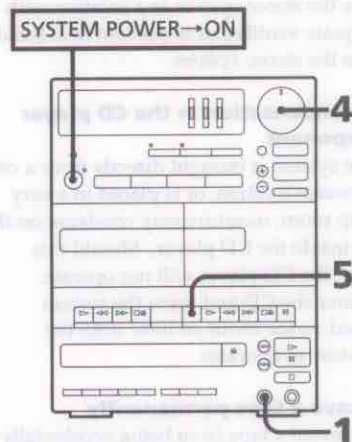
To connect a VCR

You can connect a VCR to the VIDEO/AUX jacks.

To listen to the VCR sound, press VIDEO. The sound comes through the speakers.

Microphone Mixing (for FH-B411 only)

You can "mix" sounds by playing one of the components and singing or speaking into a microphone (not supplied). The mixed sounds can then be recorded on a tape.



- 1 Connect a microphone to the MIX MIC jack.
- 2 Play your favorite sound source.
- 3 Sing or speak into the microphone.
- 4 Adjust VOLUME control. If you hear acoustic feedback, move the microphone away from the speakers or change the direction of the microphone.
- 5 If you want to record mixed sound, insert a tape in deck B and start recording.

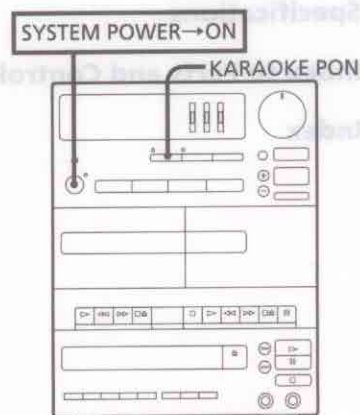
To record from the microphone only

- 1 Press CD to select the CD player. If a CD is being played, press ■ on the CD player to stop playing.
- 2 Start recording.
- 3 Sing or speak into the microphone.

When you finish mixing

Disconnect the microphone.

Karaoke: Singing Along (for FH-B411 only)



To Reduce the Vocals (karaoke pon)

You can minimize the singer's voice, "vocal reduction," so you can sing along with any stereo CD. When you want to record the sound of the CD and your voice, operate steps below, then operate "Microphone Mixing".

To reduce the vocals

Press KARAOKE PON so the indicator lights.

The karaoke play sound will be in monaural. To cancel vocal reduction, press KARAOKE PON so the indicator goes off.

Notes on vocal reduction

The singer's voice may not be reduced completely for the following reasons:

- Monaural recorded source (Instruments may also be reduced.)
- Only a few instruments are playing in the stereo recorded source
- A duet is being played
- The source has strong echoes or chorus
- The singer's voice on the source deviates from the center
- The voice on the source is singing in high soprano or tenor

For Your Information

Precautions

Troubleshooting Guide

Maintenance

Specifications

Index to Parts and Controls

Index

Precautions

If you have any questions or problems concerning your stereo system, please consult your nearest Sony dealer.

On operating voltage

Before operating the stereo system, check that the operating voltage of your stereo system is identical with the voltage of your local power supply.

U.S.A. and Canada	120 V AC, 60 Hz
Australia	240 V AC, 50 Hz

On safety

- This unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Unplug the unit from the wall outlet (mains) if it is not to be used for an extended period of time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Should any solid object or liquid fall into the system unplug the stereo system and have the system checked by qualified personnel before operating it any further.
- AC power cord must be changed only at the qualified service shop.

On installation

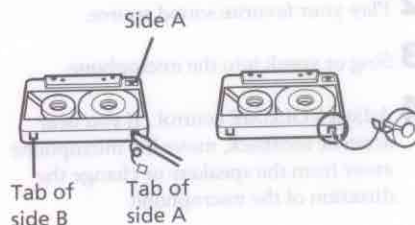
Place the stereo system in a location with adequate ventilation to prevent heat build-up in the stereo system.

On condensation in the CD player component

If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens inside the CD player. Should this occur, the CD player will not operate. Remove the CD and leave the system turned on for about an hour until the moisture evaporates.

To save a tape permanently

To prevent a tape from being accidentally recorded over, break off the cassette tab from side A or B as illustrated. If you later want to reuse the tape for recording, cover the broken tab with adhesive tape.



When you are using a type II (CrO₂) tape, be careful not to cover the detector slots which allow the tape player to automatically detect the type of tape.



For the customers in the U.S.A.

- As the laser beam used in this unit is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.
- For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

Troubleshooting Guide

If you run into any problem using the stereo, use the following check list. And first check the following points:

- The power cord is connected firmly.
- The speakers are connected correctly and firmly.

Should any problem persist after you have made the checks below, consult your nearest Sony dealer.

Tuner

"TUNED" flashes in the display.

→ Adjust the antenna.

"STEREO" flashes in the display.

→ Adjust the antenna.

Severe hum or noise.

- Adjust the antenna.
- The signal strength is too weak. Connect the external antenna.
- Connect the ground wire.

The stereo FM program cannot be received in stereo.

→ Press MONO so that "STEREO" appears in the display.

Tape Player

The tape does not record.

- No tape in the cassette compartment.
- The tab has been removed from the cassette.
- The tape has reeled to the end.

The tape does not record nor playback or there is a decrease in sound level.

- The heads are dirty. Clean them.
- Magnetic deposits have built-up on the record/playback heads.

There is excessive wow or flutter, or the sound drops out.

- The capstans or pinch rollers are contaminated.

The tape does not erase completely.

- Magnetic deposits have built-up on the record/playback heads.

Noise increases or the high frequencies are erased.

- Magnetic deposits have built-up on the record/playback heads.

CD Player

The CD tray does not close.

- The CD is not placed correctly.

The CD will not play.

- The CD is dirty.
- The CD is inserted label side down.
- The player is in pause mode.
- Moisture condensation has built-up. Leave the system turned on for about an hour until the moisture evaporates.

Play will not start from the first track.

- The CD player is in program or shuffle mode. Press CONTINUE.

" " " is displayed.

- \gg was repeatedly pressed at the end of the CD. Press \ll (or \ll on the remote commander) to return to the normal display.

General

There is no sound.

- Turn VOLUME control clockwise.
- The headphones are connected. Disconnect them.

Sound comes from one channel or an unbalanced left and right volume.

- Check the speaker connections of the inoperative channel.

The left and right sound are reversed.

- Check the speaker connection and speaker placement.

Bass is lacking or the location of the musical instruments is apparently imprecise.

- Check the speaker connection for proper phasing.

There is severe hum or noise.

- The TV or VCR is too close to the stereo system. Move the stereo system away from the TV or VCR.

The remote commander does not function.

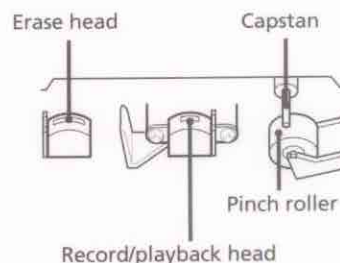
- The batteries have run down. Replace both batteries.
- There is an obstacle between the remote commander and the system. Remove the obstacle.

Maintenance

To clean the tape heads and tape path

Contaminated tape heads cause poor recording or sound drop-out in playback. We recommend cleaning after every 10 hours of operation.

Open the cassette compartment and wipe the heads, the pinch rollers and the capstans with a cleaning swab slightly moistened with cleaning fluid or alcohol. Wipe the parts shown below:



Insert a tape after the areas cleaned are completely dry.

To demagnetize the tape heads

After 20 to 30 hours of use, enough residual magnetism will have built up on the heads to begin to cause loss of high frequencies and hiss. At this time, demagnetize the heads and all metal parts in the tape path with a commercially available tape head

demagnetizer. Refer to the instructions of the demagnetizer.

To clean the cabinet

Use a soft cloth slightly moistened with mild detergent solution.

To clean the CD

When a CD is dirty, clean it with a cleaning cloth. Wipe the CD from the center out.

Notes on CD

- Do not use solvents such as benzene, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
- If there is a scratch, dirt or fingerprints on the CD, it may cause a tracking error.

Specifications

AUDIO POWER SPECIFICATIONS (For the customers in the U.S.A.) POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 6 ohm loads, both channels driven, from 60 Hz – 20 kHz; rated 10 watts per channel minimum RMS power, with no more than 1 % total harmonic distortion from 250 milliwatts to rated output.

CD player section

System	Compact disc digital audio system
Laser	Semiconductor laser
Wavelength	780 – 790 nm

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 - 108.0 MHz (100 kHz step for U.S.A. and Canada) (50 kHz step for Australia)
Antenna	FM lead antenna (for MHC-450) Telescopic antenna (for FH-B411)
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

continue to next page →

→ continued

AM (MW,SW) tuner section

Tuning range U.S.A. and Canadian models:
AM: 530 - 1,710 kHz (10 kHz step)
531 - 1,710 kHz (9 kHz step)
Australian models:
MW: 531 - 1,602 kHz (9 kHz step)
530 - 1,710 kHz (10 kHz step)
SW: 5.95 - 17.9 MHz

Antenna AM loop antenna
External antenna terminals

Intermediate frequency 450 kHz

Cassette deck section

Recording system 4-track 2-channel stereo

Frequency response (DOLBY NR OFF) (For Canadian models only)
60 - 13,000 Hz (±3 dB), using TYPE I cassette (Sony HF-S)
60 - 14,000 Hz (±3 dB), using TYPE II cassette (Sony UX-S)

Wow and flutter 0.1% WRMS ±0.3% (DIN)

Amplifier section

Continuous RMS power output:
16+16 watts (6 ohms at 1 kHz, DIN)
20+20 watts (6 ohms at 1 kHz, 5% THD)

Peak Music power output:
200 W (6 ohms at 1 kHz, 10% THD)

Inputs MIX MIC (mini jack) (FH-B411 only)
Sensitivity 1 mV, impedance 600 ohms
VIDEO/AUX:
Sensitivity 450 mV, impedance 47 kilohms

Outputs HEADPHONES (stereo mini jack):
accept headphones of 8 ohms or more.
SPEAKERS:
accept impedance of 6 to 16 ohms.

Speaker section

Speaker system 2-way system
3-way system (for U. S. A. customers)

Speaker units Woofer: 13 cm dia., cone type
Tweeter: 5 cm dia., cone type
Super tweeter: 2cm dia, dome (for U. S. A. customers)

Enclosure Bass reflex

Frequency range 65 Hz - 20 kHz

Sensitivity 88 dB/W/m

Rated impedance 6 ohms

Dimensions Approx. 175 x 285 x 240 mm (7 x 11 1/4 x 9 1/2 inches) (w/h/d)

Mass Approx. 2.7 kg (5 lb 15 oz.) net per speaker

Supplied accessories

AM loop antenna (1)
Remote commander (1)
Sony SUM-3 (NS) batteries (2)
FM lead antenna (1) (for MHC-450 only)
Speaker cords (2) (for MHC-450 only)

General

Destination	Power requirements	Power consumption
U.S.A. and Canada	120 V AC, 60 Hz	60 W
Australia	240 V AC, 50 Hz	60 W

Dimensions Approx. 225 x 285 x 275 mm (9 x 11 1/4 x 10 7/8 inches) (w/h/d)
incl. projecting parts and controls

Mass Approx. 5.2 kg (11 lb 7 oz.)

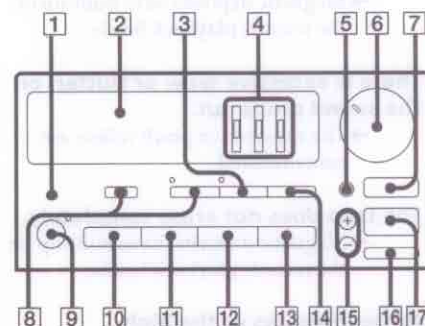
Design and specifications are subject to change without notice.

Index to Parts and Controls

Refer to the pages indicated in parentheses for how to use the controls.

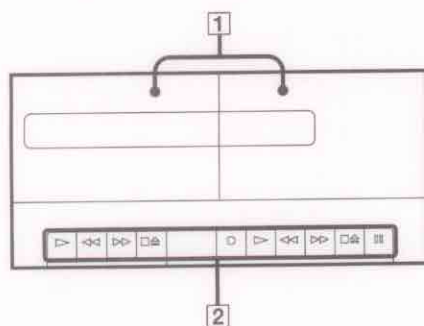
Front Panel

Tuner/Amplifier



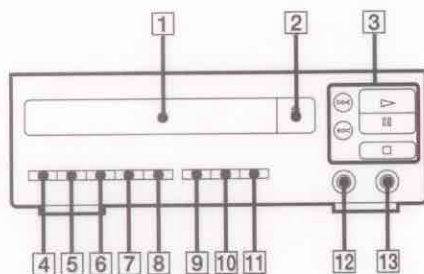
- 1 Remote sensor
- 2 Display window (6)
- 3 DBFB button and lamp (14)
- 4 Graphic equalizer controls (14)
- 5 MEMORY button (10)
- 6 VOLUME control (6, 14)
- 7 PRESET/TUNING button (9, 10)
- 8 DOLBY NR switch (Canadian models only) (11)
- 9 KARAOKE PON button and lamp (FH-B411 only) (15)
- 10 SYSTEM POWER button (6)
- 11 TAPE button and lamp (11)
- 12 CD button and lamp (6)
- 13 TUNER button and lamp (9)
- 14 VIDEO button and lamp (15)
- 15 MONO button (9)
- 16 TUNER buttons (9)
- 17 SHIFT button (10)
- 18 BAND button (9)

Tape player



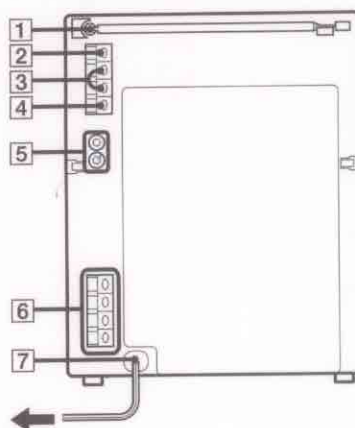
- 1 Cassette compartments
- 2 Tape operating buttons
 - ▷ (play) (11)
 - ▶▶ (fast forward) (11)
 - ◀◀ (rewind) (11)
 - ▲ (stop/eject) (11)
 - (recording)(for deck B only) (11)
 - ⏸ (pause)(for deck B only) (11)

CD player



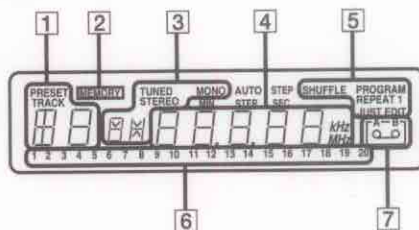
- 1 CD tray (6)
- 2 OPEN/CLOSE button (6)
- 3 CD player operating buttons
 - ▷ (play) (6)
 - ⏸ (pause) (6)
 - (stop) (6)
 - ◀◀/▶▶/▷ (manual search/AMS) buttons (6)
- 4 CONTINUE button (7)
- 5 SHUFFLE button (7)
- 6 PROGRAM button (7)
- 7 REPEAT button (8)
- 8 TIME button (7)
- 9 CHECK button (7)
- 10 CLEAR button (7)
- 11 EDIT button (12)
- 12 MIX MIC jack (15) (FH-B411 only)
- 13 HEADPHONES jack (14)

Rear Panel



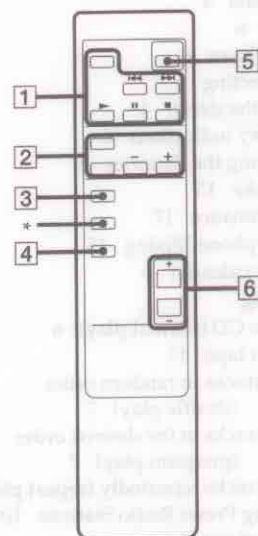
- 1 FM telescopic aerial (FH-B411 only)
- 2 FM 75Ω terminal (4)
- 3 earth terminal (4)
- 4 AM terminal (4)
- 5 VIDEO/AUX jacks (15)
- 6 SPEAKER connector (4)
- 7 AC power cord (5)

Display Window



- 1 TRACK number/PRESET radio code indication (6, 10)
- 2 MEMORY indication (10)
- 3 Tuner indication (9)
- 4 Time/frequency indication (6, 9)
- 5 CD play mode indication (7)
- 6 Music calendar (6)
- 7 Tape recording side indication (12)

Remote commander



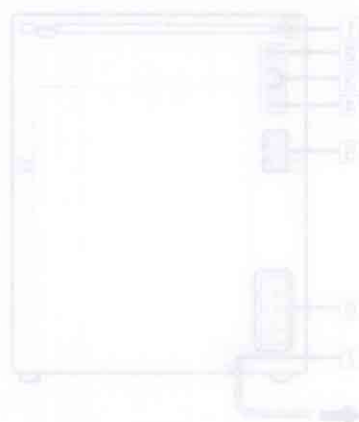
- 1 CD operating buttons
 - CD (CD mode) button (6)
 - ▷ (play) (6)
 - ◀◀/▶▶ (AMS*) (6)
 - ⏸ (pause) (6)
 - (stop) (6)
 - * AMS: Automatic Music Sensor
 - 2 Tuner operating buttons
 - TUNER (TUNER mode) button (9)
 - SHIFT button (10)
 - PRESET+/- buttons (10)
 - 3 TAPE button (11)
 - 4 VIDEO button (15)
 - 5 SYSTEM POWER button (6)
 - 6 VOL (volume) buttons (6, 14)
- * PHONO button (not applicable for this model)

*Remote
Rm 5 455*

Index

- Antenna 4
- AMS 6
- CD Player 6
- Connecting the stereo 4
- Display indications 6
- Inserting the Batteries 5
- Karaoke 15
- Maintenance 17
- Microphone Mixing 15
- Music calendar 6
- Playing
 - a CD (normal play) 6
 - a tape 11
 - tracks in random order (shuffle play) 7
 - tracks in the desired order (program play) 7
 - tracks repeatedly (repeat play) 8
- Playing Preset Radio Stations 10
- Precautions 16
- Presetting Radio Stations 9
- Recording
 - a CD 11
 - a CD Manually 11
 - from another tape (dubbing) 13
 - from the radio 13
- Recording a CD
 - specifying tape length (time edit) 12
 - specifying track order (program edit) 12
- Specifications 17
- Tape Player 11
- Troubleshooting Guide 16

Rear Panel



- 1. ANTENNA (UHF/VHF)
- 2. POWER (12V DC)
- 3. GROUND
- 4. SPEAKER (L/R)
- 5. REMOTE CONTROL
- 6. CASSETTE
- 7. CD
- 8. MIC
- 9. MIX
- 10. MONITOR
- 11. TUNING
- 12. PRESET
- 13. REPEAT
- 14. SHUFFLE
- 15. PROGRAM
- 16. STOP
- 17. EJECT
- 18. OPEN
- 19. LOCK
- 20. UNLOCK
- 21. PAUSE
- 22. FASTER
- 23. SLOWER
- 24. REVERSE
- 25. FORWARD
- 26. STILL
- 27. MUTE
- 28. UNMUTE
- 29. BASS
- 30. TREBLE
- 31. BALANCE
- 32. FADER
- 33. VOLUME
- 34. POWER
- 35. ANTENNA
- 36. POWER
- 37. GROUND
- 38. SPEAKER
- 39. REMOTE CONTROL
- 40. CASSETTE
- 41. CD
- 42. MIC
- 43. MIX
- 44. MONITOR
- 45. TUNING
- 46. PRESET
- 47. REPEAT
- 48. SHUFFLE
- 49. PROGRAM
- 50. STOP
- 51. EJECT
- 52. OPEN
- 53. LOCK
- 54. UNLOCK
- 55. PAUSE
- 56. FASTER
- 57. SLOWER
- 58. REVERSE
- 59. FORWARD
- 60. STILL
- 61. MUTE
- 62. UNMUTE
- 63. BASS
- 64. TREBLE
- 65. BALANCE
- 66. FADER
- 67. VOLUME
- 68. POWER
- 69. ANTENNA
- 70. POWER
- 71. GROUND
- 72. SPEAKER
- 73. REMOTE CONTROL
- 74. CASSETTE
- 75. CD
- 76. MIC
- 77. MIX
- 78. MONITOR
- 79. TUNING
- 80. PRESET
- 81. REPEAT
- 82. SHUFFLE
- 83. PROGRAM
- 84. STOP
- 85. EJECT
- 86. OPEN
- 87. LOCK
- 88. UNLOCK
- 89. PAUSE
- 90. FASTER
- 91. SLOWER
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